Offshore middlemen: transnational intermediation in technology sourcing

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OFFSHORE MIDDLEMEN: TRANSNATIONAL INTERMEDIATION IN OFFSHORE SYSTEMS DEVELOPMENT

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ABSTRACT

The tendency of acquiring information systems and other high technology services from international sources continues with little indication of abatement. The primary motivation for the offshore sourcing of technology and services continues to be labor cost arbitrage, and secondly, higher expertise levels. Yet, paradoxically, large gaps in technical proficiency, cultural values and communication styles between client and vendor can undermine the overall success of the offshore relationship. This paper argues that a new breed of entities have emerged, brokering or intermediating offshore systems development. The capabilities of such 'middlemen' include moderating disparities in expertise (e.g. CMMI levels), culture, and communication styles that often deteriorate performance in offshore relationships. The paper presents a preliminary theoretical justification for the emergence of offshore intermediaries; describe how and why they develop intermediation capabilities; and offers a case study as initial evidence substantiating the function and processes in intermediating transnational offshoring relationships.

1. Introduction

The migration of IT outsourcing relationships to lower cost regions such as India and China continues with few indications of abatement (King 2005). The primary motivation for this trend continues to be labor cost arbitrage. However, a secondary incentive, higher levels of skill and specialization, is also cited more frequently in managerial discourse (Dedene and Vreese 1995, Pfannenstein and Tsai 2004).

Most of the offshoring literature studies the outsourcing firm (Mahnke, et al. 2005), but there is also a growing body of literature focusing on the outsourcing vendor (Levina and Ross, 2003). This paper, in contrast, examines a new breed of offshore `brokers' or 'middlemen', bringing insight to a largely unexplored area of offshore outsourcing. While several authors mention the increasing importance of the phenomenon (Field 2002, Rottman and Lacity 2004, Rottman 2006), no literature has

theoretically addressed how offshore intermediation adds value in the context of software development. Offshore intermediation comes in different forms, but in essence, it concerns capabilities that facilitate the advantages of offshore outsourcing for clients while mitigating its most severe challenges, such as dealing with the socio-cultural, professional, and operational complexities of managing relationships across borders.

Despite the prominent role of intermediaries in all sectors of the economy, the subject has commanded most attention in the financial literature (Rousseau and Wachtel 1998). Intermediaries are effectively 'middlemen', brokering transactions between buyer and seller (Rubinstein and Wolinsky 1987). Intermediaries have been heralded for their ability to aggregate supply and demand, provide market transparency and liquidity, mitigate moral hazard and adverse selection by clearing transactions and providing trade financing, hold inventories to absorb variations in supply and demand, and re-bundle portfolios of goods and services across multiple suppliers (Rubinstein and Wolinsky 1987, Spulber 1999).

While some of the traditional functions of intermediation remain important for the facilitation of offshore systems development (e.g. coordinating multiple vendors), there are also important extensions that we attempt to define and explore in this article. In the realm of outsourced offshore systems development, a new breed of intermediary has emerged to moderate differences in culture, communication style, technical capabilities, and overall off-shoring maturity. The task is one of intellectual, rather than financial arbitrage. Unlike trade in financial assets, intermediated services cannot rely on standard interfaces with structured technological syntax to the same degree (Lee et al. 1999; Mahnke 2001, Mahnke et al. 2006). As such, offshore intermediaries offer a set of capabilities that are idiosyncratic to sourcing knowledge intensive services across international regions, and to our knowledge, not described in existing literature.[2]

[2] Such capabilities might be associated with an international knowledge management challenge, not unlike those faced by other knowledge intensive firms including consultancies (e.g. Armbrüster & Kipping 2003; Kautz and Mahnke, 2003). However transnational intermediation in software development mediates between client needs and an offshore supplier base, while many

Because offshore system development often involves highly complex processes that are difficult to plan and execute, many companies increasingly rely on the help of third party intermediaries that facilitate access to lower cost labor markets, while coping with cultural, technical and operational challenges. Offshore intermediaries reduce the transaction costs of intellectual arbitrage in software development based through a unique set of competencies. A crucial requirement is to establish 'structured technological dialogue' that allows clients to specify requirements and permits vendors to trace interdependencies and impacts on overall system performance (Monteverde and Teece, 1995). Thus, one key task of the modern offshore intermediary is to develop 'inter-firm social and intellectual capital' (Nahapiet and Goshal, 1998, Miranda and Kavan, 2005) to create interfaces allowing for inter-firm knowledge identification, knowledge-sharing, and knowledge-combination across company and national boundaries.

Consistent with traditional intermediation theory (Rubinstein and Wolinsky 1987, Spulber 1999), our argument acknowledges that in any form of exchange, parties have the option to transact directly with the other partner, or transact through an intermediary. A middleman will want some form of economic compensation for their services, so the value that the intermediary provides should exceed the cost of using them. But just exactly where this tradeoff occurs is poorly understood. For example, Field (2002) argued that big companies like JP Morgan or General Electric have the scale and experience to directly transact with tier-one vendors in India (e.g. see discussion of The Bank of New York in Field (2002)). However, smaller companies are relegated to tier -2 and -3, where quality decreases, and clients thereby incur substantially greater risks in managing and offshore partnerships. As this threshold, the intermediary justifies its costs. Some estimates suggest that over half of all offshoring partnerships will be brokered or intermediated in the future (Field 2002).

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other knowledge intensive services such as business consultancies mediate between client needs and a professional (and often local) labor markets.

However, we wish to clarify that the value added functions that offshore intermediaries provide are capabilities that can be offered by a variety of organizations, including consultants or service providers such as IBM Global Services or PriceWaterhouseCoopers. The key differentiator is if the service provider is fulfilling the service itself (internal labor source), or if it is managing 3rd party providers as a coordinator and broker of external labor markets.

As a first step towards a deeper understanding of offshore intermediation capabilities (independent of where they reside), this paper offers insights on how transnational intermediaries offer offshore intermediation services; learn from markets, institutions, suppliers, and clients in different locations; and how they use such learning to develop intermediated systems development across changing global market conditions. Specifically, we present theoretical arguments and preliminary evidence for 3 major intermediary capabilities: (i) intermediating cultural distance, (ii) intermediating cognitive distance, and (iii) preparing client for offshoring relationships and helping transfer work to lower cost locations.

Accordingly, the remainder of the paper is structured as follows. Section 2 outlines the most pressing challenges that both client and vendor have to address when accessing offshore development. Section 3 follows by outlining arguments on how offshore intermediaries add value through mitigating such challenges. Section 4 employs a grounded theory analysis of a case intermediary and its interaction with three clients to offer initial evidence of the functions of the transnational intermediary. Section 5 continues the theory building process, presenting propositions concerning the contingencies of offshore intermediation. We conclude the paper in section 6 with a discussion of future research and managerial implications.

2. Offshore Systems Development: Key Challenges

There is little doubt the world of offshoring is not only growing in volume, but also increasing in absolute scope, where offshore providers are broadening their portfolio away from simple systems development towards a broad range of high-skilled

professional services in accounting, legal, medical, life sciences and other knowledge intensive research and development processes (Aspray et al. 2006, Friedman 2005).

The literature on outsourcing IT partnerships is extensive and often highlights the unexpected complexities of managing outsourcing relationships (Earl 1996, Mahnke et al. 2005). Frequently, the anticipated cost reductions promised in outsourcing partnerships are not realized due to unforeseen complications. Specifically, the costs of vendor search and contracting, quality assurance, conflict resolution, coordination of interdependencies, as well as overall relationship management and nurturance, are often cited as unanticipated challenges for those organizations recently initiated to the practice of outsourcing (Barthelemy 2001, Lee et al. 2003).

The recognized complexities of managing IT outsourcing partnerships can assume greater severity when conducted over international boundaries (Gopal et al. 2002, Sahay et al. 2003). However, a great deal of evidence suggests that spatial, temporal and cultural disparities between vendor and client are frequent sources of complication and dissatisfaction that further exacerbate the innate challenges in a purely domestic outsourcing relationship (Gopal et al. 2002, Murthy 2004).

For example, Cusumano (2006) argues that despite the fact that 80 of the world's 117 SEI CMMI Level-5 companies are based in India, there are many hidden costs of conducting systems development in India that erode the perceived financial savings. These include travel back and forth to customer sites, competency disparities when formulating specifications, redoing work because of communications difficulties, or the constant re-work resulting from iterative development across geography and culture (Cusumano 2006).

Agerfalk and Fitzgerald (2006) develop a framework that places these relative costs and benefits across different categories. Specifically, they suggest that global software development offers challenges and rewards in; (a) communication, (b) coordination, and (c) control of systems development because of; (i) temporal distance, (ii) geographical distance, and (iii) socio-cultural distance. They specify the commonly perceived benefits of offshore system development as reduced cycle time from follow-

the-sun development, access to better skilled labor pool and best practice, and of course, reduced development costs. However, these benefits also have costs such as asynchronous communication, lack of face-to-face communication, reduced task awareness and shared vision, as well as socio-cultural differences that lead to conflicts in communication styles, work practices, cooperation, values and shared understandings.

Software development projects are easily complicated by cognitive and socio-cultural distance. Many of the standard tools of systems development and design are premised upon a shared understanding and shared context (Sese et al. 2006). For example, formal methods (Zave and Jackson 1997) that prescribe the use of mathematical logic as an avenue to formally specify and communicate user requirements may be not particularly sensitive to cultural disparities, as the language of mathematics is a universal across cultures. Unfortunately, formal methods are not frequently used in commercial systems development (Zave 1996).

However, more pragmatic and commercially applied approaches to systems development such as UML or agile development are clearly sensitive to cultural disparities. For example, object oriented design and UML (Boosch et al. 1991) are premised on the idea that concepts have a clear and well delimited meaning. As argued by Rumbaugh et al. (1991: p.21): "We define an object as a concept, abstraction, or thing with crisp boundaries and meaning for the problem at hand". However, when asked to explain how universal classes are defined; Gabriel, a designer of an OO language, contends "That's a fundamental question for which there is no easy answer. I try things" (Booch, 1994 p.145). As such, common forms of commercial systems development assume the ontological existence of universal concepts, yet they are more pragmatic concerning the epistemology of identifying and delimiting classes. This ad hoc process of class definition is particularly sensitive to differences in culture, as pragmatic solutions emerge out of the local context. If both the analyst and programmer do not share some basic interpretation and understanding of terms, classes or concepts, then misfits between an organization's requirement and the offshore solution are likely to emerge.

3. Transnational Intermediation

Because productive value available through intellectual arbitrage in offshore system development can only be obtained if the transaction costs of professional-cognitive and socio-cultural distance do not exceed productivity gains, companies seeking to benefit from off-shoring possibilities need to decide whether to develop these capabilities themselves or, alternatively, rely on an offshore intermediary against a reduction in immediate financial gains. Hence, there are conditions under which intermediated exchanges are most likely. We delimit the main areas where transnational intermediaries can add value in offshore systems development in the following section.

3.1 Bridging cultural distance.

Cultural anthropology as referenced in managerial discourse is largely attributed to the work of Hofstede (1980), with extensions seen in authors such as Trompenaars and Hampden-Turner (1997). Adherents of the cultural anthropology school tend to classify the universal dimensions of all cultures. This is exemplified in the way they address issues such as: power distance, uncertainty avoidance, individualism or collectivism, masculine or feminine values, universalism or particularism, specific or diffuse, affective or neutral, and temporal perceptions. Cultural analysis thereby identifies the parameters of these fundamental characteristics of each culture. Significant differences in such characteristics suggest the potential for conflicts, high knowledge transfer costs, translation needs, and costs associated with socio-cultural entry barriers.

Mapping social-cultural differences. Highly individual cultures, such as Anglo-American or North European, tend to use low-context communication where the information is very explicit. Individuals direct their thinking and communication needs towards themselves. By contrast, collectivist cultures, such as Asian, tend to use high-context communication with more implicit information. Collective thinking and communication emphasizes the needs of the group more than the individual, and this

significance is seen in the information exchanged (Hofstede 1980, Trompenaars and Hampden-Turner 1997). Accordingly, it is well documented that divergent cultural patterns (cultural distance) can lead to inefficient communication (Te'eni 2001, Markus and Kitayama 1991).

Determining knowledge transfer costs. In order to better understand the economic implications of cultural distance for offshore software development, a clear distinction has to be made between general knowledge and specific knowledge in offshore system development, as they differ in terms of their transfer costs (Kautz and Mahnke, 2003; Winter, 1987). When appropriate communication channels are in place, general knowledge exhibits low cost of transfer across locations and organizations (Lave and Wenger 1991). Accordingly, such knowledge might be generated and applied in offshore locations rather than onsite. Specific cultural knowledge, in contrast, is more costly to transfer, as it is location-specific or "sticky" to the geographic, organizational or institutional context in which it was created (Wareham and Gerrits 1999). Differences in specific cultural knowledge are particularly relevant for off-shoring relationships that span cultural boundaries, because knowledge of software or business process improvement opportunities are typically complex and socially embedded, interdependent with other local activities and business processes (March and Simon, 1958). Accordingly, transnational intermediation must be responsive to the type of knowledge and its transfer cost implication (Armbrüster & Kipping 2003) relevant to offshore systems development as well as constellations of socio-cultural differences in an offshore partnership.

Mitigating socio-cultural entry barriers. Social-cultural entry barriers do constitute a direct cost of doing business in low cost offshore locations (Mahnke and Lorenzen, 2004). Such differences constitute a serious barrier to both the entry into, and realization of economic gains, available through offshore system development. Specialized learning by local intermediaries is instrumental to overcome problems of hidden social norms

including principles of communication, knowledge of the people and local markets (Wareham et al. 2007).

3.2 Bridging cognitive distance.

Te'eni defines cognitive distance as the initial gap between the sender's and receiver's interpretations before transmitting the messages (Te'eni 2001 p. 282). This can result from differences in current information or from different ways of thinking and communicating. In an offshoring context, cognitive distance often arises when relatively lesser-skilled clients attempt to access a high level of expertise at comparatively lower costs (Mahnke et al. 2005). Three activities where offshore intermediary adds value include (a) specialized translations, (b) codifying interfaces, and (c) building common ground.

Specialized translations. Task coordination in offshore outsourcing benefits from a large and consistent 'shared knowledge set' about problems and possible solutions (Mahnke and Overby, 2007). However, greater expertise differentials between outsourcer and vendor can often hinder collective knowledge sharing, introduce cognitive distance and, consequently, complicate cross-border knowledge sharing (Argote 1999). For example, many Indian IT vendors have far higher CMMI levels compared to their US-based or European clients, putting them into a position of an architect to a future house owner (Cusumano 2006). Thus, to create value, transnational offshore intermediaries require the ability to understand both software development and process knowledge, to assimilate it across cultural contexts, and to apply that knowledge to client needs (Cohen and Levinthal, 1990). Importantly, clients without the intermediary may acquire and assimilate knowledge, but might not be able to transform and apply it in their context of operations.

Codifying interfaces. To address cognitive challenges, transnational intermediaries need to distinguish codified and un-codified knowledge (Polanyi 1958, Kogut and Zander,

1992). Whereas codified knowledge often results from abstraction and establishing cause-effect relations expressed in written form, un-codified knowledge often results from local experience, is context-dependent and remains embodied in the a firm's employees. Thus, one can expect that the larger the proportion of un-codified knowledge, the more costly interface identification and inter-firm system integration will be compared to a knowledge flow situation where knowledge is codified. Thus, intermediaries create value by (a) articulating and codifying interface knowledge to decrease the client's costs of knowledge transfer, or else, (b) reduce costly personal communication channels between parties whose interaction is complicated by large professional knowledge gaps.

Building common ground. Another dimension of cognitive challenges concerns the distinction between common and partitioned knowledge assets (Buckley and Carter, 1999). Knowledge between offshore partners might be commonly understood or, alternatively, highly partitioned. The greater the degree of commonly shared knowledge, the easier knowledge integration becomes. At the same time, the more knowledge is commonly understood, the less can be gained through knowledge integration. Thus, cross cultural knowledge transfer is a great challenge in offshore outsourcing, because what used to be tacit knowledge within the organization has to be explicitly formulated, translated, and communicated across cultural differences to enable reasoned cooperation with the vendor (Khan & Fitzgerald, 2004). Thus an important function of the transnational intermediary is to create beneficial degrees of common ground between offshore vendor and client.

3.3 Preparing the client for an off-shoring relationship

Many companies are in a position where they have a variety of possibilities to reap the benefits of offshore outsourcing, but have little knowledge on how to select the best approach to tap into off-shoring possibilities. Other companies are simply looking at offshore sourcing because their competitors do so, without a sound idea about how

offshore sourcing will work within the organization (Robinson & Kalakota, 2005). This void provides a formidable value creation opportunity for the transnational intermediary. While specialized transnational intermediaries potentially add value by reducing the costs of cross cultural knowledge-sharing and expertise differentials, one of the most important and often underserved functions of transnational intermediaries is to comprehensively prepare the client for an offshoring relationship. Associated activities through which transnational intermediaries help preparing clients for offshore system development include: (a) avoiding experience traps, (b) neutralizing collaborative failure source, and (c) reaching relational awareness.

Avoid experience traps. Many of the fiascos in off-shoring can be traced the fact the client was not appropriately prepared for the off-shoring outsourcing relationship due to a lack of prior experience (Willcocks and Lacity, 1999), making incorrect interferences from prior learning, as well as a lack of self-awareness of both . Some of the outsourcing relations that Lacity et al. (1995) examined experienced disastrous results because they lacked the expertise to negotiate sound contracts, select vendors and evaluate supplier's performance. As they argue, a company can't control what it doesn't understand. It is also well understood that if the clients do not fully understand their own processes, the task of codifying system requirements to offshore developers is prone to failure (Mahnke et al. 2006).

Lacking relevant experience is not the exclusive problem of the off-shoring client. Levina & Ross (2003) suggest that vendor competencies grow through the vendor's firm-wide experience gained from controlling a large number and variety of projects. However, consolidating experience across project teams and cultural context is a complicated knowledge management task (Kautz and Mahnke, 2003). In addition, lack of experience may lead vendors and clients to wrong cost estimates, such as those exhibited in 'winner's curse situations' (Kern et al., 2002).

The offshore intermediary can beneficially address how experience affects the off-shoring process in at least two more crucial ways. Prior experience can lead to

learning by doing (Arrow, 1974) in the sense that the client expects and tailors action to required client-vendor interaction in subsequent off-shoring relations. For example, learning outcomes from one pilot contract might lead to better contracting in the next, and failure of dealing with cooperating partners can foster learning of new offshore capabilities (Mahnke 2001). However, experience, especially when tacitly accumulated in diverse contexts and projects, may also lead to superstitious learning and erroneous inference between past failure/successes and future courses of action in managing offshore outsourcing relations.

Thus, important value adding activities for the transnational offshore intermediary include: creating awareness of the off-shoring purpose, process modeling, knowledge codification, understanding the organizational and programmatic interdependencies of the relevant tasks across project type and application context, and a joint and explicit evaluation of the relevance of the client's and vendors prior off-shoring experience for current joint undertakings. In addition, opening parochial and ethnocentric mindsets by mapping socio-cultural and professional differences (Ricart et al., 2004) will create awareness of the possibilities and limitations of experienced and planned offshore software development activities.

Neutralize sources of collaborative failure. The difficulties of formulating effective contracts that govern offshore systems development are notorious (Miranda and Kavan, 2005). A crucial concern is with intellectual property rights to software based systems because offshore vendors may turn into competitors or leak competitive valuable knowledge to unwanted destinations (Mahnke et al 2006). Not only is contract formulation critical, defining objective deliverables, performance and quality criteria that are measurable requires considerable prior shared knowledge - be it in the form of intellectual or social capital (Nahapiet and Goshal, 1998). However, because project contingencies cannot be predicted with sufficient accuracy, offshore contracts often remain 'incomplete'. This opens the opens the door to post-contractual haggling and mis-understanding (Williamson, 1996) and simultaneously stresses the importance of

psychological contracts (Miranda and Kavan, 2005) in governing offshore outsourcing relations.

Thus, besides helping to design better contracts with offshore vendors, in the instance of a post-contractual disagreement, an important task of the transnational intermediary is to be instrumental in defining the process of conflict resolution such that parties can quickly resolve differences and avoid costly litigation and project delays. Whenever guaranteeing measurable project outcomes is impossible between parties due to a lack of codifiable knowledge (be it socio-cultural, and/or professional) the transnational intermediary creates value by guaranteeing a process that can detect misunderstanding and resolve pending conflicts efficiently (Barzel, 1982).

Managing an offshore outsourcing relation successfully often requires skills that neither the client nor the vendor possess. For example, value added through intermediation becomes visible if one recalls a captive offshoring model, which affords the greatest control in terms of intellectual property rights and staffing opportunities because the offshore subsidiary is fully owned (Williamson, 1996). Not only does a captive arrangement come with high fixed costs of dealing with socio-cultural as well as professional entry barriers, many companies have tried and failed to construct a captive site. In other words: It is not enough to look at labor cost savings, but whoever lacks the professional diligence and cultural proficiency required for a successful setup and operation of a wholly owned operation is well advised to engage the services of an offshore intermediary who can reduce the costs of entry offset by some transactional rent on intermediates services.

Depending upon the scope of the project, the client is often not prepared with the necessary internal project management skills within its own organization to spearhead an externally developed project . The intermediary works with the client to ensure that the appropriate communication channel, implementation skills, and structures are present in-house, so that inter-firm governance structures can be tailored to relational requirements (Dyer and Singh, 1998).

Reaching relational awareness. Few issues are more intertwined with software off-shoring success or failure than reaching 'relational awareness' between outsourcing vendor and client. The problem is not only one of differences in knowledge, but also one of genuine ignorance and uncertainty (Knight, 1921). While parties to an offshore outsourcing venture may not know enough to operate at reasonable costs across cultural and professional differences, they are usually aware that they lack sufficient degrees of knowledge and resources. If so, both parties can engage a specialized transnational intermediary to address their specific knowledge problem. However, if parties lack an understanding of what they do not know, the function of the transnational intermediary begins with nurturing a client firm's ability to be aware of their own needs in terms of business processes and required systems. It is only after a client firm improves its own self-awareness that the probability of successful partnership increases with mutual relational awareness.

4.0 Case Evidence: I-Technologies

This section offers some preliminary evidence in the form of a case study to substantiate the offshore intermediary functions and inform our theory development in the subsequent section.

4.1 Data Collection and Analysis

The data were collected by 2 researchers throughout the year 2006 from interviews with the case company as well as 3 of its major clients. 8 informants from the case company included the CEO, CIO, 2 project lead managers a number of line employees. We intentionally spoke to informants at different levels of the organization in order to assure data representativeness; sampling data from stratified sources which appropriately represent the organization or phenomenon studied. Towards this goal, we also interviewed 3 major clients from different sectors including security, financial services and health care. In addition to personal interviews, other sources of primary data included telephone interviews and email correspondence. Secondary, archival data,

such as company internal documents and websites were also employed by the 3rd researcher to corroborate the findings of the first 2 researchers across the case study and provide internal control for researcher bias.

The data were coded using guidelines from the Straussian tradition of grounded theory (Strauss and Corbin, 1990). Grounded theory is an especially useful methodology to employ when a phenomenon has been little explored (e.g. offshore intermediaries). The Straussian tradition encourages the researcher to employ prior knowledge and understanding (e.g., literature from related disciplines) to shed light on the phenomenae being examined, in contrast to the Glaserian tradition, where the researchers draw conclusions entirely from the data (Glaser, 1992). In this case, prior understanding from the offshoring, outsourcing, project management, and intermediation literature guided our investigation.

We created "open" codes initially to identify patterns in the data and steadily refined the codes as our understanding of offshore intermediation increased. We converged upon three top-level codes and several layers of sub-codes within them. Briefly, the codes were: (i) cultural differences, (ii) cognitive distance, and (iii) offshore preparation.

Cultural differences were derived from the cultural anthropology research. Specifically, we employed the seven top-level dimensions of Trompenaars and Hamden-Turner (1997), widely considered a successful extension of the seminal research of Hofsteede (1980). These dimensions included: universalism vs. particularism; individualism vs. communitarianism; specific vs. diffuse; affective vs. neutral; achievement vs. ascription; and sequential vs. synchronic time perception.

Codes for cognitive distance were based predominantly in the key process areas as identified in the CMMI models (SEI 2005), as well as issues that normally are tracked in project management literature (Keil and Mann 2000). These included concepts from CMMI such as requirements management, project planning, tracking and oversight, quality assurance, configuration management, organization process focus, organization process definition. Moreover, standard concepts from the project management literature

were also used such as specification formulation, specification change, documentation, training, peer reviews, etc.

Finally, codes for offshore preparation centered on the process that the intermediary employs to ready the client for the offshoring partnership. These included: vendor search, internal project champion, project and requirements specification, documentation, interdependencies management, communication processes, contract formulation, quality measurement and control, conflict resolution.

Informant opinions were controlled by circulating a preliminary copy of the research findings among the interview respondents. We also held a number of follow-up interviews via email and telephone in order to solicit qualifications and criticism to our initial conclusions in order to correct for researcher bias and increase the internal validity of the qualitative research.

4.2 Findings

I-Technologies, founded in 1999, is an IT consultancy specializing in matching Scandinavian clients with offshore service providers. A central emphasis is facilitating cultural and professional connections to new markets and software development opportunities and providing project management and contract management services. One of the first intermediation clients who approached I- Technologies in 2001 was a leading Danish security firm DANSECURE (DS). DS is now well under way with the first offshore outsourcing efforts. Before turning to I- Technologies, the IT manager of DS estimated, "We have already asked our present supplier if they can outsource some of the tasks to countries with low costs. Everybody has been very positive towards the idea. Thus, if everything turns out fine, I could imagine that half of our outsourcing is soon taken over by sub contractors in low cost countries."

However, after unsuccessful attempts with direct offshore solutions with Indian vendors during 1999-2002, the same manager commented "We have chosen to outsource the outsourcing. Of course, the extra link via I-Technologies makes the assignment more expensive. It would probably be possible to save something by arranging it all by

ourselves, but we do not have the critical mass or the desire to move into an area where we do not have any experience".[DS IT Manager] Today, the security firm saves 33% on the solutions, where the programming takes place in India. The Indian employees spend more time on solving a task, but the price per hour is much lower. Consequently total costs are lower while the system development quality matches or exceeds local levels. On the other hand, "there are extra costs that we have to include, for example, system specifications, translation of documents, and the extra connecting link" [DS Financial Controller].

By contrast, not engaging I-Technologies services means that "clients would incur substantial vendor selection costs, system transition costs, costs associated with cultural and professional training of employees, as well as contract management costs and significant travel and re-location expenses." These costs of outsourcing the offshore outsourcing can be easily recovered as the I-Technologies responsible manager for the DanSecure cooperation explains: "Our experience has shown that we need some kind of cultural interface when managing offshore contracts. Scandinavians communicate directly and have little social hierarchy. Indians, on the other hand, have a hierarchical culture. They prefer not to say no to anyone and will often say yes – meaning yes I understand you, not yes, I agree -we will have this done on time." I-Technologies solution to this is to hire Indians and bring then on site in Scandinavia. At the same time, I-Technologies provide Scandinavian clients with a Scandinavian interface manager situated in India. In this manner, staff from both regions work side by side and develop common ground, "…their common experience allows them to foresee and avoid problems that might result from miscommunication" as an Analyst of I-Technology comments.

Moreover, another customer of I Technology, the major financial service provider ScanCard, experienced a distinct problem with disparities in working styles. "A CMMI level 0 or 1 organization will be less formal in documenting the development process, changes, etc. There is much more ad hoc problem solving which can result in sloppy, but functional code." [SC IT Manager] As a response, I-Technologies also hires developers

that have experience working for or with CMMI level 5 developers. "Most programmers would find working with CMMI level 5 development houses cumbersome and overly formalized. CMMI was developed to create consistent quality levels across a large set of military contractors writing very complicated code. For most businesses, this is pure overkill." [SC IT Manager] The developers experienced with CMMI level 5 development vendors do not program, rather, they help in the requirements specification and change requests to translate the requirements of the client into the language of the code developers. In iterative development, they help liaison between client and vender. "Our clients frequently do not understand the necessity of all the demands made by our developers. They see them as excessively thorough. Our job is to bridge this gap, communicate to both sides in their own terms, as well as to ensure consistent expectations, understanding, and translation to reach overall compatibility in the relation." [I Technologies Project Manager]

A variety of unsuccessful off-shoring ventures has lead I-Technologies to the conclusion that most clients are totally unprepared for any type of offshore relationship. As such, the company has focused its efforts on three main functions: (a) project scope definition and requirements specification, (b) development of project management and communication skills, and (c) formulation of contracts, quality criteria, and conflict resolution.

The first main function encompasses many of the tasks normally addressed in common systems development methodologies. Here, I-Technologies complete a thorough analysis of the motivations (labor arbitrage versus access to expertise), defining project scope, interdependencies, and detailed specifications. As one of the lead mangers stated, "We often encounter clients who simply have not understood their own motivations for the offshore move. This is doomed to fail by definition, because nobody in the organization has determined what might constitute success. Moreover, I-Technologies sees one of its key value adding functions in overcoming difficulties of delimiting a well-defined project scope. "Most clients think off-shoring is just a matter of picking up the phone and ordering. They are actually become quite surprised with the

amount of time it actually takes us to ask the right questions, and define a project that is constrained, but feasible. As technology consultants, we have experienced this time and time again, but our clients are always taken back by what a lengthy process requirements specification actually is." [I -Technologies Project Manager]

The second mail function relates to fact that the new systems require some kind of change in organizational processes, where it is important to develop the management's internal project management and communication skills. "With big projects that require new processes, there is a huge risk that we mange the offshore development that produces great software, and it all falls to the ground once we deliver it. Unfortunately, we have had to learn this the hard way." [I-Technologies Project Manager] Accordingly, I-Technologies will often invest considerable resources in educating the client's management with the appropriate change management tools. Here, many the classical reengineering methods (Hammer 1995) are in order to ensure that the processes are aligned with the software, and that visible project leaders are given adequate communication skills to manage the organizational transformation. "We can coordinate the development of software that is both inexpensive and sophisticated, but if we deliver it to a client that does not know what to do with it, it makes little difference." [I-Technologies Project Manager]

The third and perhaps least appreciated function of I-Technologies is in vendor management, where cultural intermediation is required in the translation between the two parties e.g., offshore contract formulation, especially the definition of verifiable quality criteria tenable to international law enforcement often remains illusive. Given the temporal, spatial, cognitive and cultural distance, the likelihood of unfulfilled expectations concerning function and quality is high. Contract enforcement is complicated in lieu of some objective quality criteria that can be understood and verified by both client and vendor. Moreover, the processes for conflict resolution are paramount to the success of the relationship, and are most frequently neglected in offshoring contracts. "It is not a question of 'if'; but 'when' the conflict is going to happen and how are we going to handle it. This can make the difference between a small bump in the

road and a full blown legal fight. Experience has told us that well functioning conflict resolution procedures are probably the most critical tool in any offshore development project" as the CIO of PROHEALTH, a major client in the insurance sector comments.

As an intermediary, I-Technologies is often not in a position to negotiate conflict resolutions between client and vendor. The risk is too large that clients view them as agents of the vendor, and many vendors view them as agents of the client. In these cases, important intermediation services include the establishment of governance structures and communication channels so that conflicts are detected quickly and arbitration is effective. In the case of PROHEALTH, where multiple offshore vendors are employed, I-Technology assumes coordination of vendors and sub-contractors via a local delivery centre in India. Such localized handling of several Indian sub-contractors includes a phase of identification and negotiation with set of potential vendors and sub-contractors in local market. In instances, where multiple sub-contractors are employed, I-Technology adds value by managing interdependencies and any conflicts to guarantee a "seamless" and coherent process for PROHEALTH across many suppliers. The table 1 summarizes the main value adding functions of transnational intermediaries and highlights examples.

Function	Description	Example	Value adding activities
Intermediate Cultural Distance	Intermediates differences in culture that are manifested in communication styles (high and low context communication), individualism vs. collectivism, and temporal sense (linear vs. poly-synchronous time perceptions) and other cultural differences that would significantly impact the likelihood of a successful off-shoring relationship.	Intermediary maintains staff with nationalities from both regions. This staffs are experienced in foreseeing common disparities in communication, work and thought styles of the two (or more) regions. Regional interface	• Mapping cultural differences • Determining associated knowledge transfer costs • Mitigating socio-cultural entry barriers
Intermediate	Intermediates differences	Intermediary has	• Specialized

Cognitive Distance	in relative skill levels that might prohibit successful communication and common understanding between client and vendor. Well known example is CMMI levels. CMMI level 5 providers work in highly systematic and structured way that may clash with clients' less formalized work style	experience with CMMI systems and actively employs staff who have worked in CMMI level 5 organizations. These professionals are technical specialists functioning as liaisons between the highly systematic CMMI 5 vendor and less specialized clients who would have difficulties speaking a similar "technical language".	translations between client's perceived needs and vendor's requirements • Codifying interfaces so that contract be crafted • Creating common ground to facilitate understanding
Preparing Clients for Offshoring Relationship	Formalized process under which intermediary works intensively with client to prepare for interaction with offshore vendor. This includes the normal systems development tools such as gap analysis, UML, requirements specification, as well as possible organization/process reengineering. In addition, intermediary knows to "ask right questions", so when the vendor begins to work, the product is developed according to a jointly agreed specification.	Project definition and selecting a well-defined pilot project; mapping a detailed requirements specification and make sure that the product is fully documented; Assist project management for client; identify a champion from client who will take command of the project; identify the actual project management; Assistance in vendor management; establish clear communication channels and policies; evaluate and modify work collaborative processes; contract formulation and definition of outcomes, measures, and quality control; define processes of conflict resolution	• Avoiding experience traps • Neutralizing collaborative failure traps • Creating relational awareness

Table 1. Transnational Intermediation: Functions and Examples

5.0 Contingencies of Transnational Intermediation

There is a growing literature that testifies to the challenges of managing offshore relations. Previous research points out that cultural, spatial and temporal differences frequently render many of these arrangements unsuccessful and result in failed development projects and costly litigation (Ågerfalk and Fitzgerald 2006, Dedene and Vreese 1995, Pfannenstein and Tsai 2004). In response, we identify that there is a need for an intermediary capability, which we have found in the form of a new breed of middlemen that helps clients access the benefits of low cost, high skilled labor in international markets, yet mitigate many of the complications that often distort such relationships.

The first major function that we have identified for transnational intermediaries is the mitigation of cultural disparities. Our case demonstrated that cross cultural conflicts are a frequent source of turbulence in offshoring partnerships. As such, the intermediary responded by hiring staff that represent all concerned national regions, thereby bridging any dissonance caused by communication style differences (highlighted in table 1). The cultural gaps between North Europe and India are generally well documented (Trompenaars and Hampden-Turner, 1997). However, the manner in which they manifest friction in a transnational client-vendor work relationship is more subtle (Markus and Kitayama 1991). While it is easy to acknowledge differences in social hierarchy or temporal perception intellectually, normative solutions to the disparities are more elusive. As such, the intermediary with experienced staff and culturally aware managers from both regions can more easily foresee and transgress well known differences in work and communication patterns caused by disparities in communication styles and values.

By mapping and creating awareness of the consequences of cultural differences in the process of cross border system development, the relevant drivers of knowledge transfer costs can be understood and influenced. In addition, especially in the case of de-novo entry in offshore location, the intermediary can mitigate cultural entry barriers.

For instance, the intermediary can influence how long it takes for the offshore business model to become operative from the initial initiative to a working project organization. In addition, the intermediary can influence how much a client has to invest initially to get an offshore relationship established. Accordingly, we formulate our first set of propositions:

> **P1** *Transnational offshore intermediation adds value through reducing the costs of cultural disparities.*
>
> > **P1a:** *Transnational offshore intermediation adds value through reducing the number of misunderstandings in cross-cultural communication.*
> >
> > **P1b:** *Transnational offshore intermediation adds value through reducing the cross-cultural value differences (temporal preferences, collective vs. individualistic, etc).*
> >
> > **P1c:** *Transnational offshore intermediation adds value through reducing the total elapsed time due to cross-cultural entry barriers.*

The second function of transnational intermediaries is the mitigation of cognitive distance. Specifically, with most of the CMMI level-5 development houses being located in India (Cusumano 2006), the differences between working styles here and in western companies can be large. Specifically, the CMMI system was developed to ensure consistent quality across military software vendors. Accordingly, CMMI has been considered exclusively as a virtue, the higher evaluation the better. However, the very high level of structure and formalization comes at a price, and it is often excessive for most business needs, where a possibility for modification after testing is much more advantageous. This differences in CMMI-levels becomes manifest in the working mentalities; specifically reactions to problems, changes, or other unforeseen hindrances (Wareham et al. 2007). The transnational intermediary helps transgress and translate the working requirements and styles of both parties. The offshore intermediary adds value by offering specialized translations between perceived client needs and vendor requirements, codifying interfaces so that contracts be crafted and systems can be connected, and creating sufficient common ground to facilitate understanding and avoiding conflict. This was primarily accomplished in our case company by hiring

analysts and developers with substantial experience with CMMI vendors. Thus, we formulate our second set of propositions:

P2: *Transnational offshore intermediation adds value through reducing the costs of cognitive distance.*

- **P2a**: *Transnational offshore intermediation adds value through mitigating differences in systems development methods or styles (formal CMMI levels versus informal specifications)*
- **P2b**: *Transnational offshore intermediation adds value through mitigating process conflict and misunderstanding caused by spatial differences and knowledge partitioning (co-location, etc)*
- **P2c**: *Transnational offshore intermediation adds value through mitigating process conflict and mis-understanding through specialized translation, interface codification, and creating common ground, e.g. through providing context cues on processes and/or results.*

The third major function of transnational intermediaries is the comprehensive preparation of the client for an off-shoring relationship. Client's preparedness cannot be assumed, neither on an organizational nor application level. Associated activities through which transnational intermediaries help prepare clients for offshore system development include creating awareness of the off-shoring purpose, developing analytical understanding of organizational and programmatic interdependencies, and a joint and explicit evaluation of the relevance of the client's and vendors prior experience for current joint off-shoring ventures. In addition, opening parochial and ethnocentric mindsets will create awareness of the possibilities and limitations of experienced and planned offshore software development activities. Table 1 highlights a number of the specific actions used by our case intermediary that include: project definition and detailed requirements specification, vendor management, contract formulation and quality monitoring and other project management skills applied both to the client and the vendor. Thus we propose:

P3: *Transnational offshore intermediation adds value by preparing the client for offshoring partnerships.*

P3a: *Transnational offshore intermediation adds value by defining project scope and interrelations of experiences for vendor/client relations.*

P3b: *Transnational offshore intermediation adds value by preparing client with appropriate project management and communication abilities, and specifying processes of conflict resolution between vendor and client.*

P3c: *Transnational offshore intermediation adds value by avoiding experience traps, neutralizing collaborative failure sources, and reaching relational awareness.*

A theory of transnational intermediation in offshore system development requires not only insights into *what activities* the intermediary performs, but *how these activities are performed*. It also requires insights into *where the work* of the transnational intermediary is most beneficially conducted. Because not all offshore system development tasks are alike, value added functions may depend of where the transnational intermediary performs its work. Where the intermediaries' work most beneficially takes place depends on contingencies such as project complexity, user interaction needs, and prior knowledge in the system development task. In the following, we advance further propositions to qualify the value added of transnational intermediation in offshore development.

P4: *Transnational offshore intermediation adds value by facilitating the relocation of system development work from onsite to offshore locations*

P4a: *The lower the system project complexity, the greater the value added by re-locating system development work offshore.*

P4b: *The greater the client's knowledge of system requirements, the greater the value added by re-locating system development work offshore.*

P4c*:* *The lower degrees of required interaction between client and software development team, the greater the value added by re-locating system development work offshore.*

6.0 Discussion and Conclusion

Unlike financial intermediation, the intermediation of offshore systems development work cannot be understood as the simple exchange of well defined products or instruments. It is a task of intellectual, rather than financial arbitration, and is often riddled by complications of socio-cultural and professional distance, as well as disparate international experience of parties involved. Accordingly, we argue that there is a need for intermediation capabilities in offshore systems development partnerships. We have provided theoretical arguments and preliminary evidence for 3 major intermediary functions: (i) intermediating cultural distance, (ii) intermediating cognitive distance, and (iii) preparing client for offshoring relationship.

We contribute to the IS outsourcing literature by identifying a new role in offshore system development efforts. Rather than taking the perspective of the offshore vendor or client as in previous research, we provide a novel view of the offshore middleman. As mentioned, some estimates suggest that more than 50% of all offshoring partnerships will be brokered by intermediaries in the future (Field 2002). While the phenomenon has been mentioned in the previous offshoring literature, (Field 2002, Rottman and Lacity 2004, Rottman 2006), it has, to our knowledge, yet received in-depth empirical or theoretical attention.

Empirical justification for our findings is presented as a case company, which serves to substantiate our theory development efforts regarding transnational offshore-intermediation. Focusing on a 'middlemen' such as I-Technologies allows us to zoom in on the role of an intermediary function in pure form[3], and to develop theory on what, how, and where software development tasks are performed. While we believe we make an important contribution to the literature on required intermediation capabilities in offshore software development, we leave open the questions who and in which legal form an intermediation functions shall be best performed. As Field (2002) observers, the 'man in the middle' may, but does not have to, be placed in separate legal entity as was

[3] By pure form we mean that this company does nothing else than offshore intermediation. Other companies do bundle functions such as own software development and consulting with their offshore intermediating capabilities.

the case with I-Technologies. At times, firms choose to internalize the 'middle men function' to deal directly with offshore vendors. At other times, a global software vendor might assume the function by providing a local interface to clients, while internalizing project management functions for the vendor. Accordingly, we will actively pursue and encourage a more comprehensive theory of transnational intermediation in offshoring partnerships that moves beyond the scope of the current paper. This would include the questions of the relative merits of who should perform and legally host the intermediary capabilities.

Our study has a number of limitations that deserve attention. First, our evidence is fairly limited and originates from a single organization. Moreover, our empirical understanding of this phenomenon is nascent at best. While several of the functions we identified are well understood, (e.g. managing multiple vendors), most of the functions we have identified are novel in the context of offshore sourcing of knowledge-intensive software development services. An interesting empirical question for future research is to what extent transnational intermediation capabilities are similar to the capabilities of traditional consultancy business. Important similarities include that both businesses include knowledge management challenges (e.g. Armbrüster & Kipping 2003). However, there are also important differences. For example, while consultancies conventionally mediate between clients and the professional labor market, the transnational intermediary we studied mediates between clients and vendors in offshore locations.

Hence, future research will benefit from larger sample sizes, allowing for a testing of the propositions, and increased theoretical advances that would help to focus and refine research efforts in this area. Moreover, as our empirical evidence is based in offshore systems development, we have focused our arguments on this task. However, future research and managerial implications could also be extended into other knowledge intensive and innovation-centric industries (e.g. pharmaceuticals, life sciences, technology R&D, financial services, medical services, and management consulting) where the phenomenon of business process off-shoring could prove very

beneficial In such research, the definition and verification of orthogonal properties, such as: a) transaction antecedents, b) generalizable properties of common processes, and c) sector specific variables, will be a useful guide for future research in transnational intermediation.

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